MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2022/2023

DSD 5411 – SYSTEMS ANALYSIS AND DESIGN

(DIT)

5 JULY 2023
2.30 p.m – 4.30 p.m
(2 hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **THREE (3)** pages.
2. Answer **ALL** questions.
3. Please print all your answer in the **Answer Booklet** provided.

STRUCTURED QUESTIONS (40 MARKS)

Instruction: Answer all questions and print your answer in the answer booklet provided.

QUESTION 1 (10 MARKS)

Table 1 shows the IS activities, dependencies, and optimistic, realistic, and pessimistic times a project manager might input into a PERT chart for software development.

Activity	Immediate Predecessor	Optimistic time (o)	Realistic time (r)	Pessimistic time (p)	Expected time
A	--	2	4	6	
B	A	3	6	9	
C	A	8	10	12	
D	B	9	12	15	
E	C	8	9	10	
F	D, E,	16	21	26	
G	D, E	19	22	25	
H	F	2	5	8	
I	G, H	1	3	5	

Table 1: IS Activities

a) Calculate the Expected Time (***ET***) for each activity. Show the calculation for each ET. [2.5 marks]

b) Draw a network diagram for the IS project shown in *Table 1*. [3 marks]

c) For each activity, calculate its earliest completion time (***TE***), latest completion time (***TL***) and slack time (***ST***). Label ***ET, TE, TL*** and ***ST*** on the network diagram. [4 marks]

d) List the critical path for this project and shade in the network diagram. [0.5 mark]

Continued.....

QUESTION 2 (10 MARKS)

A potential patient *registers* with Mesra Clinic System (MCS) by submitting a patient application form. A new patient record is created and stored in the patient record.

A patient can *make an appointment* by providing their patient identification card number. An appointment card is given to the patient after they have made the appointment. The appointment details are stored in the appointment record.

A receptionist will make a telephone call to *update the appointment* confirmation. All the appointments will be stored in the database for the patient after they enter their patient details. A receptionist can also cancel appointments for a patient by entering their cancellation details. Both processes update the appointment section of the database.

On the appointment date, a doctor will see a patient, and the doctor will be able to *view a list of appointments and the patient's records*. A doctor may want to *issue a prescription* by entering prescription details into the system and issuing a prescription to the patient.

Based on the case described above:

a) Draw a *Context-level diagram* for Mesra Clinic System (MCS). [2 marks]

b) Draw a *Data Flow Diagram (Level 0)* for Mesra Clinic System (MCS) by showing general processes, data stores, data flows, and sources or sinks. [8 marks]

Continued.....

QUESTION 3 (10 MARKS)

a) Define the following terms:

i. Form [1 mark]

ii. Report [1 mark]

iii. Dialogue sequence [1 mark]

iv. Interface [1 mark]

v. Normalization [1 mark]

b) Briefly explain **FIVE (5)** methods of user interaction with the system.

[5 marks]

QUESTION 4 (10 MARKS)

a) What are **TWO (2)** important things to remember when testing information systems?

[2 marks]

b) List any **FOUR (4)** types of software application testing. [2 marks]

c) Differentiate between alpha testing and beta testing under acceptance testing.

[2 marks]

d) Explain and contrast **FOUR (4)** types of maintenance. [4 marks]

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